

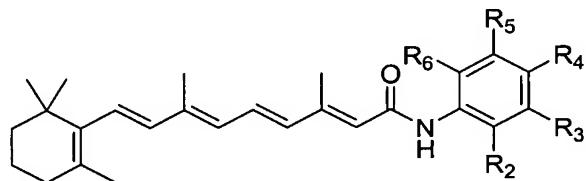
**Amendments to the Claims:**

This listing of claims will replace all prior versions and listings of claims in the application.

**Listing of Claims:**

Claims 1-4 (Canceled)

Claim 5. (Currently Amended) ~~An arylretinamide for inducing apoptosis in a cancer cell, said arylretinamide having Structure A, B, or C below:~~ A compound according to the formula:



**Structure A**

wherein

R<sub>2</sub> is a member selected from the group consisting of H, OH, NO<sub>2</sub>, CH<sub>2</sub>OH, CH<sub>2</sub>OH, a halide, or and an alkyl comprising 1-4 carbon atoms,

R<sub>3</sub> is a member selected from the group consisting of H, OH, NO<sub>2</sub>, CO<sub>2</sub>CH<sub>3</sub>, CO<sub>2</sub>CH<sub>2</sub>CH<sub>3</sub>, CO<sub>2</sub>(CH<sub>2</sub>)<sub>2</sub>CH<sub>3</sub>, CO<sub>2</sub>(CH<sub>2</sub>)<sub>3</sub>CH<sub>3</sub>, CO<sub>2</sub>H, CH<sub>2</sub>OH, a halide, or and an alkyl comprising 1-4 carbon atoms;

R<sub>4</sub> is a member selected from the group consisting of H, OH, OCH<sub>3</sub>, OCH<sub>2</sub>CH<sub>3</sub>, O(CH<sub>2</sub>)<sub>2</sub>CH<sub>3</sub>, O(CH<sub>2</sub>)<sub>3</sub>CH<sub>3</sub>, SO<sub>2</sub>CH<sub>3</sub>, SO<sub>2</sub>CH<sub>2</sub>CH<sub>3</sub>, SO<sub>2</sub>(CH<sub>2</sub>)<sub>2</sub>CH<sub>3</sub>, SO<sub>2</sub>(CH<sub>2</sub>)<sub>3</sub>CH<sub>3</sub>, NH<sub>2</sub>, NHCOCH<sub>3</sub>, NHCOCH<sub>2</sub>CH<sub>3</sub>, NHCO(CH<sub>2</sub>)<sub>2</sub>CH<sub>3</sub>, NHCO(CH<sub>2</sub>)<sub>3</sub>CH<sub>3</sub>, NHCOCF<sub>3</sub>, N<sub>3</sub>, NCS, NO<sub>2</sub>, a halide, an alkyl comprising 1-4 carbon atoms, or and NHCOCH<sub>2</sub>X, wherein X is a halide;

R<sub>5</sub> is a member selected from the group consisting of H, NO<sub>2</sub>, C(CH<sub>3</sub>)<sub>3</sub>, C(CH<sub>2</sub>CH<sub>3</sub>)<sub>3</sub>, C((CH<sub>2</sub>)<sub>2</sub>CH<sub>3</sub>)<sub>3</sub>, C((CH<sub>2</sub>)<sub>3</sub>CH<sub>3</sub>)<sub>3</sub>, CO<sub>2</sub>CH<sub>3</sub>, CO<sub>2</sub>CH<sub>2</sub>CH<sub>3</sub>, CO<sub>2</sub>(CH<sub>2</sub>)<sub>2</sub>CH<sub>3</sub>, CO<sub>2</sub>(CH<sub>2</sub>)<sub>3</sub>CH<sub>3</sub>, a halide, or and an alkyl comprising 1-4 carbon atoms, and

R<sub>6</sub> is a member selected from the group consisting of H, CO<sub>2</sub>H, CO<sub>2</sub>CH<sub>3</sub>, CO<sub>2</sub>CH<sub>2</sub>CH<sub>3</sub>, CO<sub>2</sub>(CH<sub>2</sub>)<sub>2</sub>CH<sub>3</sub>, CO<sub>2</sub>(CH<sub>2</sub>)<sub>3</sub>CH<sub>3</sub>, a halide or and an alkyl comprising 1-4 carbon atoms;

~~provided however that when R<sub>2</sub>, R<sub>3</sub>, R<sub>5</sub>, and R<sub>6</sub> are all H, R<sub>4</sub> is not OH or OCH<sub>2</sub>CH<sub>3</sub>;~~  
and also

provided that the phenyl moiety is not mono-substituted with CH<sub>3</sub> at R<sub>2</sub> or R<sub>6</sub>,

provided that the phenyl moiety is not mono-substituted with OH or CO<sub>2</sub>H,

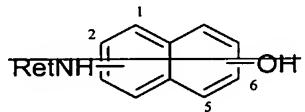
provided that the phenyl moiety is not mono-substituted with halide or OCH<sub>2</sub>CH<sub>3</sub> at R<sub>4</sub>,

provided that the phenyl moiety is not mono-substituted with NO<sub>2</sub> or halide at R<sub>3</sub> or R<sub>5</sub>,

provided that the phenyl moiety is not mono-substituted with CO<sub>2</sub>CH<sub>3</sub> at R<sub>6</sub>,

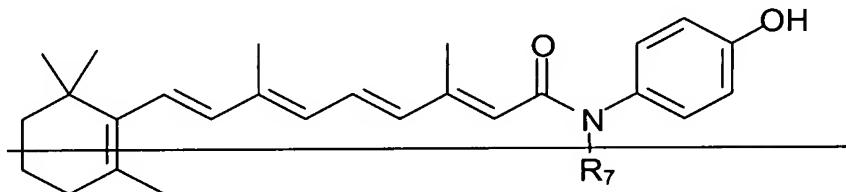
provided that when R<sub>3</sub>, R<sub>5</sub>, and R<sub>6</sub> are all H, and R<sub>2</sub> is OH, R<sub>4</sub> is not CO<sub>2</sub>CH<sub>3</sub>; and

provided that the phenyl moiety is not di-substituted with CH<sub>3</sub> at R<sub>3</sub>, R<sub>4</sub> or R<sub>5</sub>.



### Structure B

~~wherein the OH group is at position 2,4, or 5 when the retinamide group is at linked to position 1, and the OH group is at position 3 when the retinamide group is linked to position 2.~~



### Structure C

~~wherein R<sub>7</sub> is C<sub>1</sub> to C<sub>4</sub> alkyl.~~

Claim 6. (Withdrawn) The arylretinamide of claim 5 wherein the arylretinamide is a halohydroxyphenyl retinamides which comprises a phenyl moiety that is optionally substituted with an alkyl group.

Claim 7. (Currently Amended) The arylretinamide compound of claim 6 wherein ~~the phenyl moiety is substituted with a methyl group at least one of R<sub>2</sub>, R<sub>3</sub>, R<sub>4</sub>, R<sub>5</sub> and R<sub>6</sub> is CH<sub>3</sub>.~~

Claim 8. (Withdrawn) The arylretinamide of claim 6 wherein the halo group is an iodo group.

Claim 9. (Withdrawn) The arylretinamide of claim 5 wherein the arylretinamide is a hydroxy-alkylphenyl retinamides or hydroxy-alkoxyphenyl retinamide, wherein the alkyl groups attached to the phenyl moiety comprise from 1 to 4 carbon atoms.

Claim 10. (Withdrawn) The arylretinamide of claim 9 wherein the arylretinamide is a hydroxy-methylphenyl or hydroxy-methoxyphenyl retinamide.

Claim 11. (Original) The arylretinamide compound of claim 5 is a hydroxy-nitrophenyl retinamides or alkylsulfonyl hydroxy retinamides ~~wherein at least one of R<sub>2</sub>, R<sub>3</sub> or R<sub>4</sub> is OH and and at least one of R<sub>2</sub>, R<sub>3</sub> R<sub>4</sub> or R<sub>5</sub> is NO<sub>2</sub>; or wherein at least one of R<sub>2</sub>, R<sub>3</sub> and R<sub>4</sub> is OH, at least one of R<sub>2</sub>, R<sub>3</sub> R<sub>4</sub>, R<sub>5</sub> or R<sub>6</sub> is the alkyl, and R<sub>4</sub> is SO<sub>2</sub>CH<sub>3</sub>, SO<sub>2</sub>CH<sub>2</sub>CH<sub>3</sub>, SO<sub>2</sub>(CH<sub>2</sub>)<sub>2</sub>CH<sub>3</sub> or SO<sub>2</sub>(CH<sub>2</sub>)<sub>3</sub>CH<sub>3</sub>.~~

Claim 12. (Withdrawn) The arylretinamide of claim 11 wherein the arylretinamide is an ethylsulfonyl-hydroxy, retinamides.

Claim 13. (Withdrawn) The arylretinamide of claim 5 wherein the arylretinamide is a hydroxy-naphthylphenyl retinamide.

Claim 14. (Withdrawn) The arylretinamide of claim 5 wherein the arylretinamide is an N-alkyl(hydroxyphenyl) retinamides.

Claim 15. (Withdrawn) The arylretinamide of claim 5 wherein the arylretinamide is an aminophenyl retinamides.

Claim 16. (Currently Amended) The arylretinamide compound of claim 5 wherein ~~the arylretinamide is an alkylhydroxyphenyl retinamides wherein at least one of R<sub>2</sub>, R<sub>3</sub> and R<sub>4</sub> is OH and at least one of R<sub>2</sub>, R<sub>3</sub>, R<sub>4</sub>, R<sub>5</sub> and R<sub>6</sub> is an alkyl comprising 1-4 carbon atoms.~~

Claim 17. (Withdrawn) The arylretinamide of claim 5 wherein the arylretinamide is a carboxy-hydroxyphenyl retinamides selected from the group consisting of *N*-(2'-hydroxy-3'-carboxymethylphenyl)retinamide, *N*-(2'-hydroxy-3'-carboxyphenyl)retinamide, *N*-(2'-hydroxy-6'-carboxymethyphenyl)retinamide, *N*-(2'-hydroxy-6'-carboxyphenyl)retinamide, *N*-(3'-hydroxy-4'-carboxymethylphenyl)retinamide, *N*-(3'-hydroxy-4'-carboxyphenyl)retinamide, *N*-(2'-hydroxy-5'-carboxymethylphenyl)retinamide, *N*-(2'-hydroxy-4'-carboxyphenyl)retinamide, *N*-(4'-hydroxy-3'-carboxymethylphenyl)retinamide, and *N*-(4'-hydroxy-3'-carboxyphenyl)retinamide.

Claim 18. (Canceled)

Claim 19. (Currently Amended) A method of inducing apoptosis in a human breast cancer ~~cell~~ cells comprising contacting the cancer cell with ~~an arylretinamide~~ the compound of any one of claims 5-17 ~~claim 1~~.

Claim 20. (Currently Amended) A method of treating human breast cancer in a subject in need of said treatment, comprising administering ~~one or more arylretinamides of~~ ~~claim 1~~ to the subject the compound of any one of claims 5-17.

Claim 21. (Withdrawn) The method of claim 20 wherein said method further comprises administering calcium glucarate to the subject.